REMARKS

This communication responds to the Office Action mailed on April 7, 2005. No claims are amended, no claims are canceled, and no claims are added; as a result, claims 20-22, 24, 26, 28, 32, 34, and 37 are now pending in this Application. Please consider the following remarks, and **note that this response is filed with a request for continued examination, as well as a request for an interview with the Examiner**.

Interview Request

The Applicant's representative, Mark V. Muller, would like to request the courtesy of a telephone interview with Examiner Jin-Cheng Wang and Mr. John David Miller, the inventor in the instant Application. Examiner Wang is invited to phone the Applicant's representative at 210-308-5677 to arrange a date and time for the interview.

§103 Rejection of the Claims

Claims 20, 22, 24, 26, 28, 32, 34 and 37 were rejected under 35 USC § 103(a) as being unpatentable over Obata (U.S. 5,222,203). The Applicant does not admit that Obata is prior art, and reserves the right to swear behind this reference in the future. And, since a *prima facie* case of obviousness has not been established as required by M.P.E.P. § 2142, the Applicant respectfully traverses this rejection.

The Examiner has the burden under 35 U.S.C. § 103 to establish a *prima facie* case of obviousness. *In re Fine*, 837 F.2d 1071, 1074, 5 U.S.P.Q.2d (BNA) 1596, 1598 (Fed. Cir. 1988). The M.P.E.P. contains explicit direction to the Examiner in accordance with the *In re Fine* court:

> In order for the Examiner to establish a *prima facie* case of obviousness, three base criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based

on applicant's disclosure. *M.P.E.P.* § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d (BNA) 1438 (Fed. Cir. 1991)).

The requirement of a suggestion or motivation to combine references in a *prima facie* case of obviousness is emphasized in the Federal Circuit opinion, *In re Sang Su Lee*, 277 F.3d 1338; 61 U.S.P.Q.2D 1430 (Fed. Cir. 2002), which indicates that the motivation must be supported by evidence in the record.

No proper *prima facie* case of obviousness has been established because none of the required elements has been demonstrated, that is: (1) the reference does not teach all of the limitations set forth in the claims; (2) there is no motivation to modify the reference; and (3) modifying the reference as suggested by the Office provides no reasonable expectation of success. Each of these points will be explained in detail, as follows.

The Reference Neither Teaches Nor Suggests All Limitations: As admitted in the Office Action, "Obata does not specifically teach the claim limitation of assigning a transparency factor to alpha." While an attempt is made in the Office Action to equate the transparency factor claimed by the Applicant with mixing the color of two image objects, these concepts are in fact entirely unrelated.

In Obata, the steps followed to display a translucent object involve the use of a light source vector VL, a vector normal to the object surface VN, an incident light intensity IL, and a diffused transmitted light coefficient Ktr. First the intensity of reflected ambient light Iambi is calculated, and then the intensity of diffused transmitted light Itr is calculated. When all pixel brightness values and all translucent object brightness values I are determined, the translucent object is displayed. *See* Obata, Col. 5, lines 37-65.

The brightness value I for displaying a translucent object may be obtained as a function of Iambi and Itr, as well as Idiff and Ispec. Idiff is the diffused reflection light component, and Ispec is the specular reflection light component. See Obata, FIGs. 7-8 and Col. 9, lines 35-59. As noted in the Office Action (Office Action, pg. 13), it is the light source location vector VL that sets the angle theta (see FIG. 2 of Obata), and the brightness value or color value depends on this angle theta.

As a matter of contrast, in the instant Application, the transparency of an image is determined as a function of the angle of incidence of the normal viewing surface vector at the

object surface. This angle is not related in any way to the intensity of incident light IL, from which all color mixing components are determined, including Itr, Idiff, and Ispec. Even the component Iambi depends on the ambient light intensity ILa. *See* Obata, Col. 5, line 66 – Col. 6, line 52.

Thus, with respect to claim 20, and as admitted in the Office Action, Obata does not teach "assigning a transparency factor to alpha", as claimed by the Applicant. Further, Obata does not teach "modulating the transparency of an image ... as a function", wherein "the function comprises a cosine function" (claim 22), or a "non-linear function" (claim 24). In addition, Obata does not teach "calculating the transparency factor from the angle of incidence", comprising "calculating a cosine of the angle of incidence" (claim 26), or "calculating a non-linear function of the angle of incidence". (claim 28). Still further, Obata does not teach modulating a transparency factor of an image ... as a function", wherein "the function comprises a cosine function" (claim 32), or a "non-linear function". (claim 34), or "modulating the transparency non-linearly". (claim 37)

No Motivation to Modify the Reference: As the Office Action acknowledges, Obata does not teach the claim limitation of "assigning a transparency factor to alpha." It is clear from a careful reading of Obata that the color mixing taught therein does not provide a transparency factor depending on the angle of incidence claimed by the Applicants, but is rather a characteristic of the material forming the object to be displayed:

> The diffused transmitted light component may be calculated based upon a coefficient which is a function of the characteristics of the material forming the translucent object, the intensity of incident light from the light source and the angle of incidence of the incident light for illuminating the translucent object. The characteristics of the material include its transmissivity and its transparency." Obata col. 2, lines 25-33.

The Applicant can find no motivation in Obata or in the arguments set forth by the Office to modify the color mixing techniques of Obata, which are highly dependent on the material characteristics, incident light intensity, and incident light angle (see above quotation) to obtain the transparency factor recited in claims 20, 26, 28, 32, and 34, or the image transparency of claims 22, 24, and 37. Thus it appears that the Examiner is using personal knowledge as a basis for these assertions, and an affidavit is again respectfully requested as required by 37 C.F.R. § 1.104(d)(2).

No Reasonable Expectation of Success: It is respectfully noted that the test for obviousness under § 103 must take into consideration the invention as a whole; that is, one must consider the particular problem solved by the combination of elements that define the invention. *See Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1143, 227 U.S.P.Q. 543, 551 (Fed. Cir. 1985) (emphasis added). References must be considered in their entirety, including parts that teach away from the claims. See MPEP § 2141.02. Where a *single* reference is cited, and that reference does not include one or more elements of the rejected claim, the Applicant asserts that no reasonable expectation of success can properly be found due to the missing elements.

In the case of Obata, the viewpoint vector VE is only mentioned when an attempt is made to determine whether the viewpoint and light source are on the same side of the display surface:

> "... in step (3), it is judged whether or not a viewpoint and a light source are on the same side of a display surface of a translucent object to be displayed. The surface is hereinafter referred to as a translucent surface. The judgement is performed wherein, for example, an inner product of the viewpoint vector VE and the normal vector VN and an inner product of the light source vector VL and the normal vector VN are obtained; then it is judged whether or not the product of the inner products is positive." Obata, Col. 7, lines 39-49, and Col. 9, lines 5-17.

Thus, a product of inner products is evaluated by Obata, and the sign of the resulting scalar is used to determine the location of the light source. Neither the product, nor its components are used to directly modulate or calculate image transparency.

In summary, the reference neither teaches nor suggests the element of image modulating or calculating image transparency, or assigning a transparency factor, as claimed by the Applicant in claims 20, 22, 24, 26, 28, 32, 34 and 37. No evidence in the record supports a suggestion or motivation, either in the reference itself or in the knowledge generally available to one of ordinary skill in the art, to modify the reference to achieve the claimed embodiments. The modifications suggested in the Office Action do not consider the problem solved by the embodiments of the invention, and therefore provide no reasonable expectation of success. Thus, the requirements of *M.P.E.P.* § 2142 have not been satisfied; and a *prima facie* case of obviousness has not been established with respect to the Applicant's claims. It is therefore respectfully requested that the rejections to claims 20, 22, 24, 26, 28, 32, 34 and 37 under 35 U.S.C. § 103 be reconsidered and withdrawn.

CONCLUSION

The Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone the Applicant's attorney Mark Muller 210-308-5677, or the below-signed attorney at (612) 349-9592, to facilitate prosecution of this Application. If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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Date June 7, 2005

By Ann M. McCrackin
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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 7TH day of June 2005.

John D. Gustav-Wrathall
Name

Signature